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Designation: awrhhi04a-14
Last updated: 8/2/23
Source: Holzforschung Austria
Editor: HFA, SP

External wall - awrhhi04a-14

external wall, timber frame construction, ventilated, with dry lining, with cladding, other surface

Performance rating

Fire protection performance	**REI from inside**	60
	REI from outside	30

maximum ceiling height = 3 m; maximum load $E_{d,fi}$ = 19,2 kN/m
Classified by HFA
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Germany

F60 (from inside)/F30 (from outside)

Load $E_{d,fi}$ according to the German certification document

Corresponding proof: manufacturer-specific

Thermal performance	**U**	0.18 W/(m²K)
	Diffusion	suitable

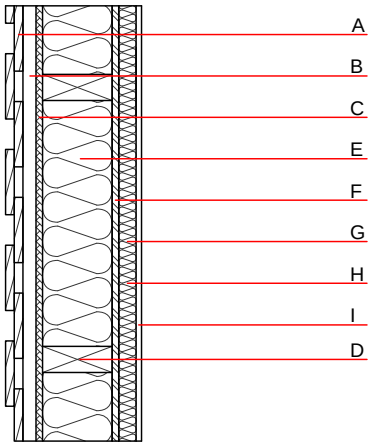
Calculated by TUM

Acoustic performance	**R_w ($C;C_{tr}$)**	51(-3;-10) dB
	$L_{n,w}$ (C_I)	

Assessed by Müller-BBM

Mass per unit area	**m**	65.50 kg/m²

Calculation based on gypsum plaster board type DF



Note: dry lining ≥ 40 mm

Register of building materials used for this application, cross-section (from outside to inside, dimensions in mm)

	Thickness	Building material	Thermal performance				Reaction to fire
			λ	μ min – max	ρ	c	EN
A	24.0	larch wood external wall cladding	0.155	150	600	1.600	D
B	30.0	spruce wood battens offset (30/50; 30/80) - ventilation	0.120	50	450	1.600	D
C	15.0	fibreboard (MDF)	0.140	11	600	1.700	D
D	200.0	construction timber (60/..; e=625)	0.120	50	450	1.600	D
E	200.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
F	15.0	OSB	0.130	200	600	1.700	D
G	40.0	spruce wood cross battens (a=400) ≥ 40mm	0.120	50	450	1.600	D
H	40.0	Cellulose fibre [040; 50]	0.040	1	50	2.000	E
I	12.5	gypsum plaster board type DF or	0.250	10	800	1.050	A2
I	12.5	gypsum fibre board	0.320	21	1000	1.100	A2

Sustainability rating (per m²)

Database ecoinvent

$OI3_{Kon}$	17.5

Calculated by HFA

Database GaBi (ÖKOBAUDAT)

Built-in renewable materials	**kg**	61.750
Biogenic carbon in kg CO_2-e.	**kg CO_2**	86.700
Energy use of Primary Energy	**MJ**	576.520
Share of renewable PE	**%**	35.44

Calculated by TUM

Details of sustainability rating

Database ecoinvent

Lifecycle (Phases)	GWP [kg CO_2-e.]	AP [kg SO_2-e.]	EP [kg PO_4-e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.115	0.048	1,72E-6	0.023	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	133.564	857.325	990.889	339.686	28.891	368.578

Database GaBi (ÖKOBAUDAT)

Lifecycle (Phases)	GWP [kg CO_2-e.]	AP [kg SO_2-e.]	EP [kg PO_4-e.]	ODP [kg R11-e.]	POCP [kg Ethen-e.]	
A1 - A3		0.078	0.016	1,51E-6	0.023	
C1 - C4		0.006	0.008	1,31E-7	0.001	
A1 - C4		0.086	0.024	1,65E-6	0.024	

Lifecycle (Phases)	PERE [MJ]	PERM [MJ]	PERT [MJ]	PENRE [MJ]	PENRM [MJ]	PENRT [MJ]
A1 - A3	203.107	982.900	1186.065	351.097	22.362	373.550
C1 - C4	0.839	-787.179	-786.341	15.870	-21.420	-5.550
A1 - C4	204.325	195.980	400.362	372.196	0.994	373.280